

ABSTRACT OF THE DISCLOSURE

A calcium fluoride crystal produced in accordance with a method for producing calcium fluoride crystal on the basis of refining a raw material of calcium fluoride and causing crystal growth of the refined calcium fluoride, the method including a process of raising a purity of the calcium fluoride to complement the refining, wherein a transition density in crystal is not greater than  $1 \times 10^5 / \text{cm}^2$ , and that dispersion of transition density inside an effective portion in crystal is in a range of  $\pm 5 \times 10^4 / \text{cm}^2$ . Also disclosed is an optical element to be manufactured by use of such  $\text{CaF}_2$  crystal.